WHAT IS CLAIMED IS:

1. An echo canceler using an adaptive filter to generate an echo replica signal from a received far-end signal and using the echo replica signal to cancel an echo component in a near-end signal, thereby generating a transmit signal, the echo canceler comprising:

a double-talk detector for detecting at least a double-talk state;

an echo path change detector for estimating an echo path loss on an echo path by which the echo component reaches the transmitted near-end signal from the received far-end signal, thereby detecting echo path change; and

a control unit for controlling adaptation in the adaptive filter according to detection of the double-talk state by the double-talk detector and detection of echo path change by the echo path change detector.

2. The echo canceler of claim 1, wherein:

the adaptive filter adapts to changes in the echo path by updating tap coefficients;

the control unit suspends or abates updating of the tap coefficients when the double-talk detector detects the double-talk state, provided the echo path change detector does not detect echo path change; and

the control unit permits the tap coefficients to be updated normally when the double-talk detector detects the double-talk state if the echo path change detector also detects echo path change.

3. The echo canceler of claim 1, wherein the adaptive filter generates the echo replica signal from the received far-end signal and adapts to changes in the echo path according to the received far-end signal and the transmit

signal.

4. The echo canceler of claim 3, wherein the control unit comprises:

a first switch controlled by the double-talk detector, supplying the transmit signal to the adaptive filter but suspending the supply of the transmit signal when the double-talk state is detected; and

a second switch controlled by the echo path change detector, supplying the transmit signal to the adaptive filter when said echo path change is detected.

5. The echo canceler of claim 3, wherein the control unit comprises a switch controlled by the double-talk detector and the echo path change detector to supply the transmit signal to the adaptive filter, supply of the transmit signal being suspended in the double-talk state when said echo path change is not detected, supply of the transmit signal continuing in the double-talk state when said echo path change is detected.

6. The echo canceler of claim 1, wherein the echo path change detector comprises:

a received signal level calculator for calculating a level of the received far-end signal;

a transmit signal level calculator for calculating a level of the transmitted near-end signal;

an echo path loss calculator for calculating an echo path loss as a ratio between the calculated levels of the received far-end signal and the transmitted near-end signal;

an echo path loss change detector for calculating a long-term average of the obtained echo path loss; and

a decision unit for detecting said echo path change, necessary conditions for detection of said echo path change

including at least a separation between the echo path loss obtained by the echo path loss calculator and the long-term average of the echo path loss obtained by the echo path loss change detector less than a predetermined value, and detection of the double-talk state.

7. The echo canceler of claim 6, wherein the echo path change detector further comprises a counter for counting a number of consecutive time intervals during which the double-talk state is detected, another necessary condition for the detection of said echo path change being that a count value of the counter is equal to or greater than a predetermined threshold count value.

8. The echo canceler of claim 6, wherein the echo path change detector further comprises an echo path loss tolerance calculator determining whether the echo path loss obtained by the echo path loss calculator exceeds a predetermined threshold, another necessary condition for the detection of said echo path change being that the echo path loss obtained by the echo path loss calculator is equal to or less than the predetermined threshold.

9. The echo canceler of claim 8, wherein the echo path change detector further comprises a hangover calculator for supplying an enabling signal after a predetermined duration starting from a transition of the echo path loss determined by the echo path loss tolerance calculator from a value greater than the predetermined threshold to a value equal to or less than the predetermined threshold, yet another necessary condition for the detection of said echo path change being that the hangover calculator supplies the enabling signal.

10. A method of controlling the updating of tap coefficients in an adaptive filter in an echo canceler that uses the adaptive filter to generate an echo replica signal from a received far-end signal and uses the echo replica signal to cancel echo from a near-end signal, thereby generating a transmit signal, the method comprising:

detecting a double-talk state in which the received far-end signal and the near-end signal are both active;

detecting echo path change from an echo path loss on an echo path from the received far-end signal to the near-end signal;

suspending or abating the updating of the tap coefficients in the double-talk state when said echo path change is not detected; and

allowing normal updating of the tap coefficients in the double-talk state when said echo path change is detected.

11. The method of claim 10, wherein detecting echo path change further comprises:

calculating a short-term smoothed value of the echo path loss; and

calculating a long-term smoothed value of the echo path loss;

one necessary condition for detection of said echo path change being that the short-term smoothed value of the echo path loss does not exceed the long-term smoothed value of the echo path loss by more than a first predetermined amount.

12. The method of claim 11, wherein said one necessary condition is the only necessary condition for the detection of said echo path change in the double-talk state.

13. The method of claim 11, wherein detecting echo path change further comprises measuring a time interval during

which the double-talk state is detected continuously, yet another necessary condition for detection of said echo path change being that continuous detection of the double-talk state persists for at least a predetermined time.

14. The method of claim 11, wherein another necessary for detection of said echo path change is that the echo path loss is greater than a predetermined threshold.

15. The method of claim 14, wherein detecting echo path change further comprises measuring a time interval during which the double-talk state is detected continuously, yet another necessary condition for detection of said echo path change being that continuous detection of the double-talk state persists for at least a predetermined time.

16. The method of claim 14, wherein detecting echo path further comprises measuring a hangover interval having a predetermined duration, starting from a transition of the echo path loss from a value equal to or less than the predetermined threshold to a value greater than the predetermined threshold, yet another necessary condition for detection of said echo path change being expiration of the hangover interval.

17. The method of claim 16, wherein detecting echo path change further comprises measuring a time interval during which the double-talk state is detected continuously, yet another necessary condition for detection of said echo path change being that continuous detection of the double-talk state persists for at least a predetermined time.